1.

```
int loop(int x){
int counter = 0;
for (int i = x; i > 0; i /= 2){
    for (int j = 0; j < i; j++){
        counter += 1;
    }
}
return counter;
}
```

What is the complexity of this loop function?
Ans: O(nlogn)

==

1.

```
int run(int x){
int counter = 0;
for (int i = 0; i < x; i++)
    for (int j = i; j > 0; j--)
        counter += 1;
return counter;
}
```

What is the complexity of this run function?
Ans: O(n^2)

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1.

```
void loop (int n, int arr[]){
j = 0;
for(int i = 0; i < n; ++i)
    while(j < n && arr[i] < arr[j])
        j++;
}
```

What is the complexity of this loop function?

Ans: O(n)

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1.What does it mean when we say that an algorithm A is asymptotically
more efficient than B?
Ans: A will be a better choice for all inputs except small inputs.

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